

THE LIFE OF A BULLET.

Shot Showing Its Conduct During Its Rapid Flight.

WHY IT DOESN'T SHATTER GLASS.

Success of the Newark Schoolmaster in Electric Chastisement.

FLASHING DISHS BY THE CURRENT.

(WRITTEN FOR THE DISPATCH.)

Mr. C. V. Hays, in a lecture at the South Kensington Museum, London, has shown that remarkable success has been attained in photographing flying bullets and other rapidly moving bodies by the light of the electric spark. The spark is generated by the discharge of a Leyden jar, there being the conductor two breaks which the current does not pass through at a jump. But when the bullet or flying object comes in contact with one the spark is instantly emitted from the other. As then, the duration of a spark may be much less than even the millionth of a second, it is far and away the excess of the speed of the bullet, and an accurate view is procured by the camera. The bullet is seen as a line made as distinct as if the objects photographed were movable as the form of the bullet, its direction and inclination, the balling up of air in front of it, the long drawn out vacuum in the air behind it, and the various vortices and contortions of the atmosphere through which it is passing.

In Mr. Hays' lecture these photographs are enlarged into gigantic pictures on the screen and made perfectly clear in all their general and interesting details to the audience. Some of the most remarkable effects are connected with the passage of a bullet through glass. In one of the photographs the head of the bullet is protruding, carrying what seemed to be a thick cloud of lead vapor, caused by fusion of the impact, and another showed the form of dust from the smashed-up glass.

Others gave views of the strains set up in a plate glass around the clean perforation made by the bullet. The most curious and startling fact that a bullet will cut a clean hole in a pane of glass is now made additionally clear, as it demonstrates that the speed of the bullet exceeds the speed at which the waves in the glass can travel. The reason is that the round portion of glass in front of the bullet is pounded, locally, into powder before the exterior portions have time to start in motion. Various other important acoustic and optic data are being developed in the study of the phenomena rapidly moving bodies; for instance, the fact that the speed of light is exceeded by a bullet in the transmission of sound, and how, by a series of differently inclined conical perforations through the bullet, the waves which the capacity of light can follow, the effects of rotation can be ascertained, as well as details of the difference of spin effected between that given by the barrel and that produced by the rapid escape of the missile through the air.

Furnishing Boys by Electricity.

In the windows of the electrical supply company, a chalky looking substance is exposed for sale the "moral and entertaining" battery, specially designed for the use of fathers of families and schoolmasters. The battery will be intended either for the demonstration of various electrical phenomena to the inquiring youthful mind or for the administration of physics to correct the errors of the schoolmaster. The schoolmaster, as heretofore reported in THE DISPATCH, has been the first to show how much can be done. He found that some of his pupils were so slow of learning that he lost his patience and his right arm ached almost beyond endurance. Pondering the fact that electricity is being applied to everything that produced a result for the saving of labor, he bethought himself that a judicious use of the electric current, nicely graduated, to suitable and suitable dishes, would be used by the schoolman who does the hangman's work and that which gives a pleasing thrill to the student of would be a most profitable business plan and soon had his system in working order. It acted like a charm, and now has no more bad boys.

The schoolmaster's new application of electricity is thus concisely given: "A bad boy, a dark lumber, a buzzing noise, a whiplike instrument, a bare flesh, a howl, a jump toward the wall, a violent start, a sudden change of position is applied by the dominie at the base of the skull and other convenient points." One of the regenerate pupils is thus to be heard to say: "I have been in operation. He says 'It feels all to do as he said' about out of you."

Washing Dishes by Electricity.

It is diswashing in many large hotels is done almost entirely by means of the electric motor, and an appliance for this purpose has been constructed on a scale to meet the most exacting requirements. The machine consists of two heavy cast-iron wheels, grained inside and outside, and encased with wood to prevent the escape of the heat and protect the motor. There is a driving shaft passing through both wheels, with a speed of 3,000 revolutions per minute, according to work required, and consumes about 300 watts of power. The washer occupies 300 cubic feet of space, and weighs about 3,000 pounds. It is comparatively useless, and is as rapid in working that, according to the claim of the inventor, it washes from 3,000 to 4,000 dishes per hour without chipping or marring in any single dish. The dishes need not be washed singly, and plates, cups, saucers, and glassware, bowls, etc., can be placed simultaneously in the receptacle provided, and be washed without further care. No oiling is necessary, as the process is self-cleaning. The heating of the water is so arranged that it can be regulated to any degree at will.

Underground Conduits for Underground Main.

It is now being applied to the manufacture of conduits for underground mains of electrical transmission. Slabs of glass are made in lengths from one foot to five feet, having large round grooves of one inch to one and a half inches in diameter, and of concrete. The process of laying out consists in first digging a trench and laying out of concrete, on which a layer of pitch is run. On this the lower slab is placed, and then the upper slab is placed and the trench completed above, thus forming a solid insulating conduit, in which bare wires are capable for long distances of use. This system has not yet been practically tested, but it promises well.

Lighting Vehicles Electrically.

Other evidence of the increasing use of electric light for luxurious as well as for simple purposes is the appearance of an electric carriage lamp. This lamp requires a diameter of only 3 1/2 inches in diameter and weighs not more than 3/4 of an inch from the top of the carriage. The lamp can be removed from the carriage by means of a switch inside the carriage, and a switch for the control of the driver is used for turning on or turning off the lamps placed in the carriage. The batteries are placed under the driver's or inside the carriage, and these will supply lamps equal to six candle power for ten hours. The entire equipment weighs but 50 pounds.

It is more refreshing than a good sleep! You can't sleep in a bed with a lamp. Engine will clean them out.